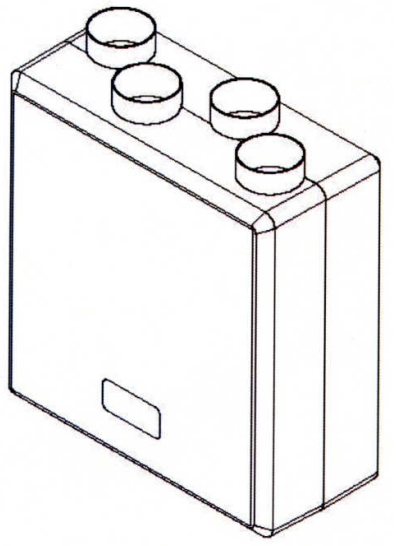
Tel: 01206 228500

DUPLEXVENT™

MODEL: DV72 EC

Mechanical Ventilation with Heat Recovery
Installation Instructions and User Manual



Commissioning Data: to be completed by the installer				
Date of installation:				
Configuration	Left Hand		Right Hand	
Product Serial No:				

Important: This multi speed unit requires Air Flow Rates to be adjusted on installation

This manual must be kept by the householder

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1. General

To maintain a healthy indoor environment, closely controlled ventilation is essential. There are many pollutants that will affect the indoor air quality: human body waste products in the shape of CO_2, dead skin, perspiration and moisture. Add to this the waste products of cooking (cooking smells), showering (moisture), gases from building materials and the waste products of pets. Without proper ventilation this would be the perfect environment for the growth of mould and subsequent damage to the decoration and fabric of a home and the health of its occupants.

The HR unit is fitted with two fans:

The **exhaust fan** ensures that warm, damp and polluted air as near as possible to the source will be extracted. The exhausted air must be replaced with fresh air and so the HR heat recovery unit has not only an exhaust fan but is also fitted with a **supply fan** and air filters.

The supply air, which in winter is colder than the inside air, is heated in the heat recovery unit using the heat of the exhaust air by means of the heat exchanger. This heat exchanger has an efficiency of 94%, so a minimum loss of heat takes place and the supply air temperature is at an acceptable and comfortable level.

In exceptionally cold weather, winter conditions it is possible that the exchanger may freeze due to sub-zero, cold incoming air. In such circumstances temporarily turn off the unit to allow the exchanger to thaw. If the problem persists an in-duct heater may be required. (switch not supplied).

The fans are low energy EC motors with a constant (100% adjustable) air volume.

The filters in the unit ensure that the fresh supply air is clean as it enters the home. Also the extract air from the property is filtered to protect the heat exchanger from unwanted contamination. These filters have to be cleaned every month, depending on the pollution. The filters should be replaced annually or after a maximum of 3 cleaning cycles.

DO NOT switch off the unit – it is designed to run continuously. If the unit is switched off, indoor pollutants and moisture levels may increase and become a danger to your health and damage your home.

In the event of a power failure or the unit has been turned off, restart the unit at High Speed. This MVHR unit has a soft start.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

It is important to follow the advice in this user manual and correctly maintain the system to ensure a healthy indoor environment.

2. Introduction

2.1 General

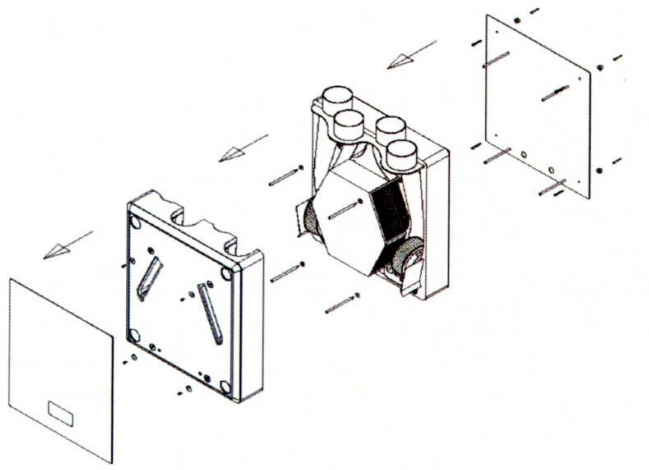
The HR is a complete heat recovery unit to ensure optimum efficiency for your home.

The unit can easily be set up for left or right handed operation. This can be done by changing the position of the condensation drain at the bottom of the unit. See figure 3 on page 4.

Using the stand off feet, screws and plugs supplied, fit the unit vertically or horizontally, either in a kitchen cupboard or on a wall or on its back in the loft space.

As standard the unit is delivered complete with a mounting plate, fitting instructions, fixing kit and a condensation discharge fitting. The equipment requires a three speed switch which is available at an extra cost.

2.2 Fitting the HR in brief



1. Dismantle the HR unit in accordance with Section 3 of this manual
2. Mounting plate: Mounted by means of stand off feet, screws and plugs supplied, vertically or horizontally. Locate the hole positions, ensuring that there is enough space around the unit so that the duct work and the condensation drain can be fitted
3. Reassemble the HR unit in accordance with Section 3 of this manual.
4. When the HR unit has been mounted, the ducting runs can be completed. Remember that both ducts to and from outside will be fitted to one side of the unit and the ducts to and from the home are attached to the other side of the unit. Also the condensation discharge under the unit can be fitted at this stage, please see figure 3 for reference on which side it should be fitted.
5. When the duct runs are completed if an appropriate electrical supply is present, the installation can be completed.

For further information about the operation, adjustment and maintenance of the unit, read the next pages carefully.

3. Installation

3.1 Mounting the HR unit

The mounting plate of the HR unit can be fitted directly to the wall or joists with the delivered screws, plugs and stand off feet. Ensure that there is enough space for the condensation fitting and ducts to be connected. The position of the electrical power supply (an earthed wall socket or fused switched spur) must **not** be mounted above or closer than 1m to a cooker where it could be affected by excessive heat or moisture.

The unit is designed to be mounted in a 600mm wide kitchen or airing cupboard or on a wall, or on its back in a loft.

Make sure there is a free space at the front of the appliance for cleaning the filter and carrying out maintenance on the appliance. When fitting on its back make sure that a minimum of 4^0 down slope to ensure proper drainage of condensation.

3.2 Important instruction

Installation of the appliance must be carried out by a qualified and suitably competent person in accordance with all relevant Building Regulations and Health & Safety requirements and the fitting instructions of the HR heat recovery unit. Installation should be carried out in clean, dry conditions where dust and humidity are at minimum levels. This appliance is not suitable for outdoor installation.IEE wiring regulations must be adhered to.

3.3 Connecting ducts

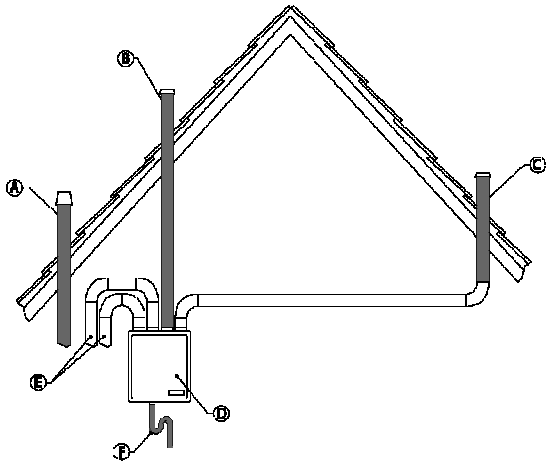
When the HR heat recovery unit has been installed the ducts can be fitted. The ducts to and from the home are on one side of the unit. The ducts to and from outside are on the opposite side.

In order to prevent condensation on the outside of the exterior air inlet duct and the air outlet duct, both ducts **must** be insulated.

It is recommended that flexible ducting with a minimum length of 1500mm be used for the ducts to and from the appliance. Flexible ducting should be fully extended with no drooping over joists but without placing any strain on the terminal or fixings. We recommend a minimum distance of 200mm between the appliance and any sharp bends in the duct work. This is to ensure that the noise levels are kept a minimum.

Remember: When sizing the ducts try to ensure that the total resistance of the inlet as well as the exhaust system does not exceed 100 Pascal.

3. Installation



A = No exhaust duct too close to the air inlet
B = Inlet duct from roof
C = Outlet duct from roof
D = HR unit
E = Ducts from and to the house
F = Condensation drain (not supplied)

Fig 2: Connection example HR Heat Recovery Unit

3.4 Connecting condensation drain

The condensation drain must be mounted at the bottom of the HR heat recovery unit with the fitting supplied. Use a 20mm hole saw to cut out the bung, taking care to cut on the correct side of the unit according to left or right handed configuration. Avoid damage to the mains cable. Use silicon seal and to seal the condensation fitting to the back half of the HR unit.

The drain must discharge into the household drainage system or directly to outside. Take care that the distance between the unit and U-bend will be enough for de-mounting and cleaning

Important Note: The drain must incorporate a U-bend to prevent air penetration.

Condensation drain: 22mm standard PVC

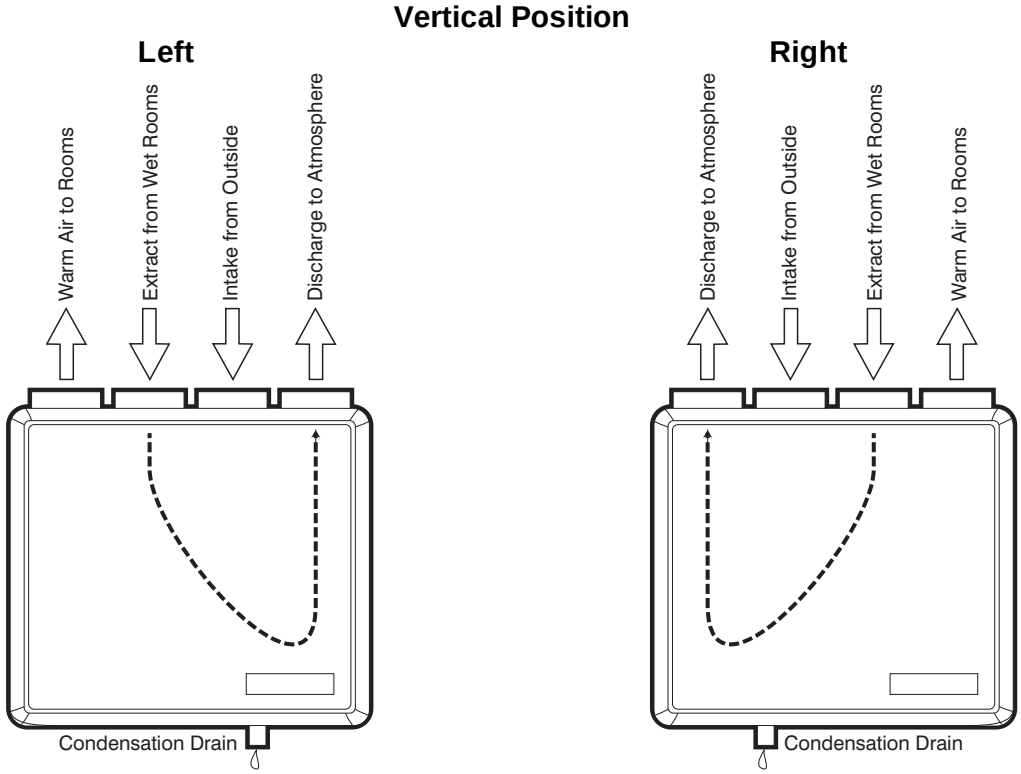


Figure 3: Connection of HR to drain pipe

3. Installation

3.4 Connecting condensation drain

Horizontal Position

Left **Right**

3.5 Electrical connections

The appliance must be earthed. All wiring must confirm to BS 7671: Latest edition IEE wiring regulations.

This appliance is suitable for 230V ~ 50Hz single phase supply fused at 3 amps.

This appliance is supplied with a mains flexible cable (PVC sheathed, 6-core 0.75mm^2).

A double pole switch having a minimum contact separation of 3.0mm must be used to provide isolation for the unit.

Switch Positions	**Function**
Low (R1)	100% adjustable
Medium (R2)	100% adjustable
High (R3)	100% adjustable
Remote Switch Positions	
(R4)	100% adjustable
(R5)	100% adjustable

Upon installation the fan should be started in High speed mode to ensure optimum performance of the fans and switched to the required continuous ventilation setting.

The fan speed control **must not** be mounted above or closer to 1m to the cooker where it could be affected bv excessive heat or moisture.

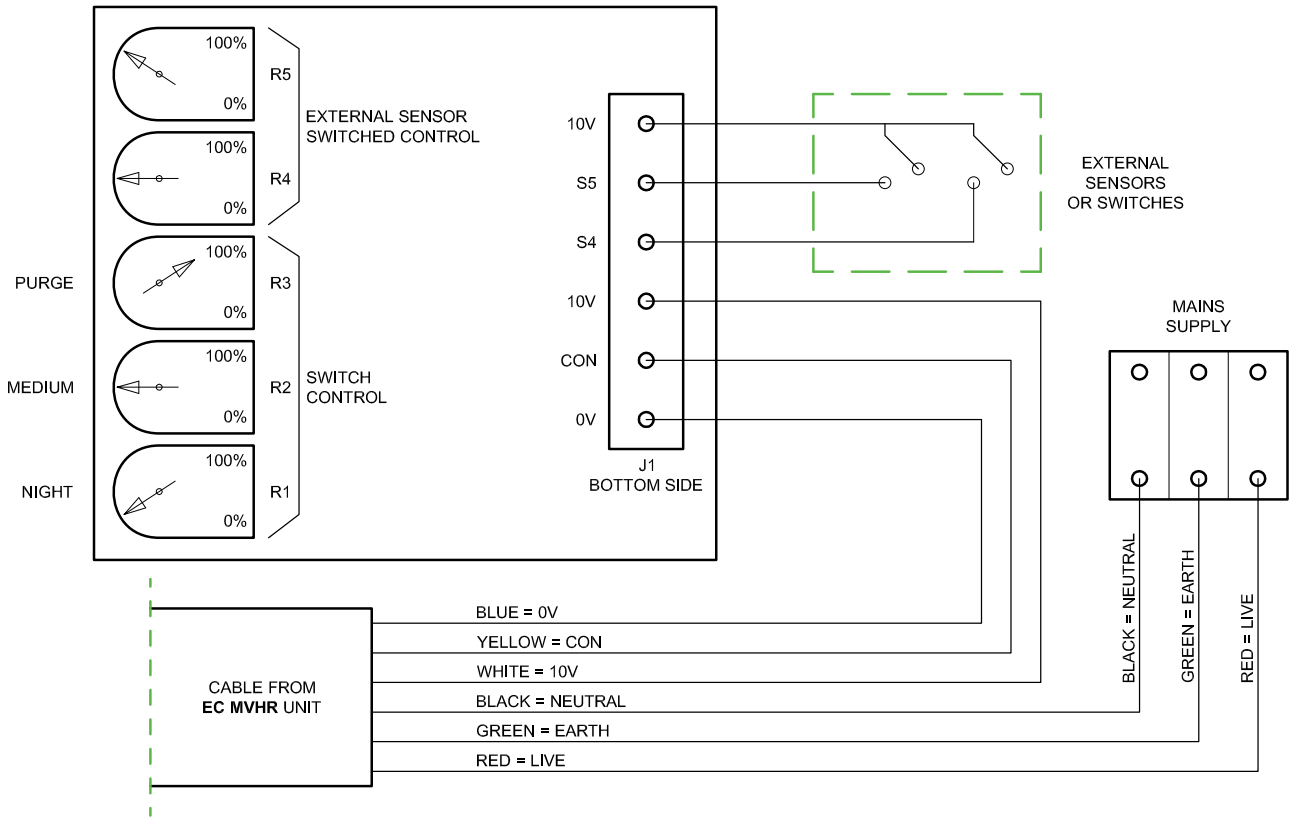
3. Installation

3.5 Electrical connections

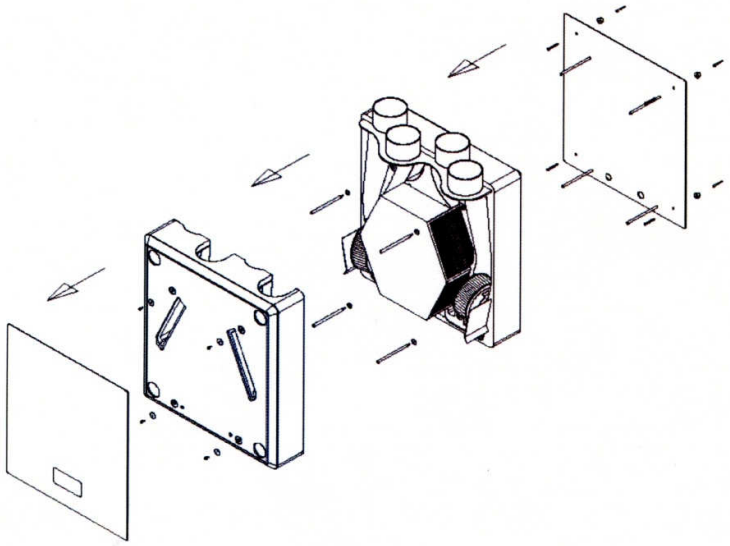
Wiring diagram

A five speed control switch (3 x manual, 2 x external sensors) is supplied. Each fan speed must be adjusted to suit dwelling on installation (R3/R4/R5).
Any optional external sensors, i.e.: CO2, Humidity, Timer/Clock, Motion/PIR must also be adjusted when connected (R1, R2).

Suggested set points are shown for general purpose ventilation (trickle, medium, purge) which enable manual boost for purge (maximum) ventilation and/or override of external sensors when fitted.



3.6 Installation diagram/Mounting the unit



1. Pull the green front cover off the four Velcro fixings.

2. Place the unit flat on the floor and unscrew and keep safely the four stud retaining screws.

3. Without damaging the rubber seal separate the moulded top half of the unit from the bottom half by pulling the casing straight forward.

4. Unscrew the four forward protruding studs and keep safely.

5. Stand unit upright to separate the metal wall mounting plate from the bottom half of the casing. Pull the casing forward leaving the rear protruding studs attached to the metal backplate.

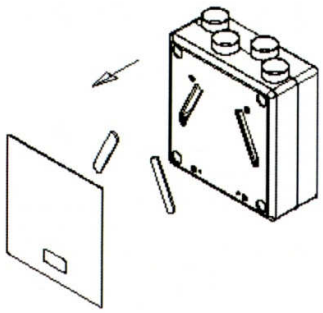
6. Secure the metal base plate with the rear studs still attached to the wall

7. Re-assembly of the unit to the wall mounted backplate with the protruding studs is the reverse of the removal procedure

4. User Maintenance

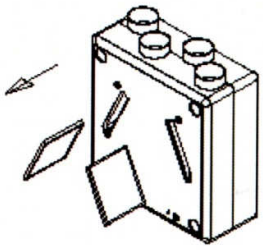
User maintenance is limited to periodically cleaning the filters and the heat recovery cube. The unit should not be used without filters.

4.1 Cleaning the filters by user



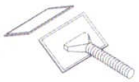
1

Switch off the power supply
Remove front panel
Remove filter covers



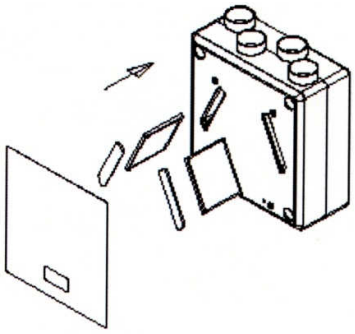
2

Remove the filters



3

Vacuum the outside of the filter



4

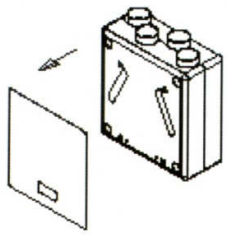
After cleaning replace filters at same side

5

Replace filter covers and front panel
Always ensure that the date is recorded on the back of the front panel

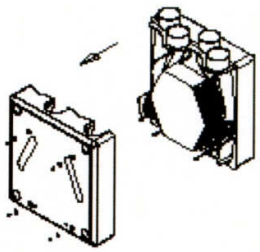
4. User Maintenance

4.2 Cleaning the heat exchanger by user



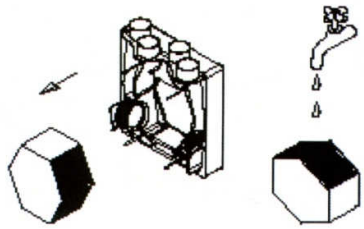
1

Important: Switch off the power supply
Remove front panel



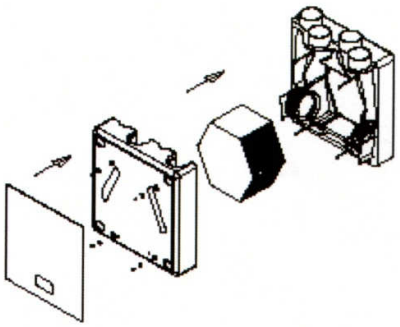
2

Unscrew the 4 screws on the front of the unit.
Remove the front half of the unit



3

Remove the heat exchanger
Clean the heat exchanger with warm soapy water
Use a sterilizing agent to sterilize



4

Reassemble the unit taking care not to damage the rubber seals

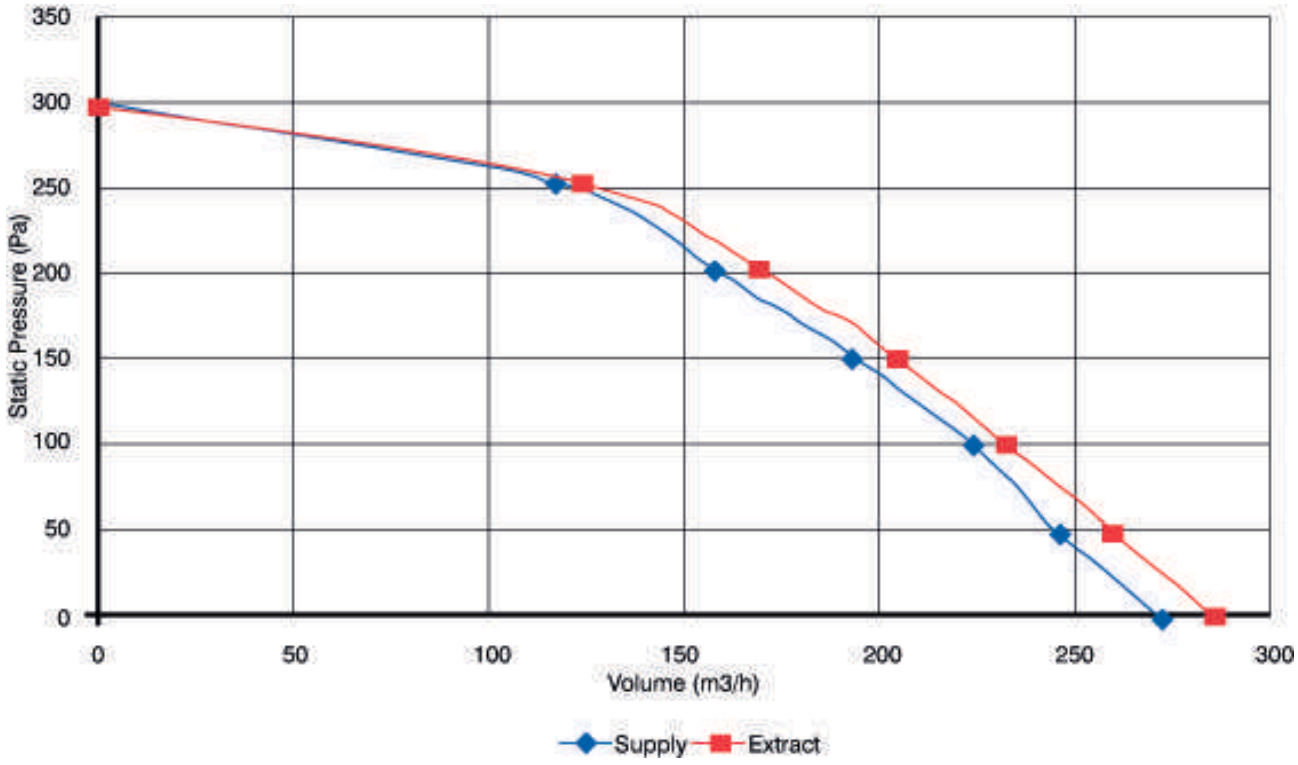
The fans must be cleaned if they are dirty. Be sure not to bend the blades of the fan since this could cause a motor imbalance, unnecessary noise and will shorten the life of the motor bearings. To expose motors, follow the above instructions and vacuum out where necessary. We recommend that this is done at the same time as cleaning the heat exchanger.

Technical specifications

Appliance data

	← Switched →			← External sensor →		
EC Fan settings selected on installation (100% adjustable)	**Low speed R1**	**Middle speed R2**	**High speed R3**	**R4**	**R5**	**Max**
Typical Ventilation Settings [m^3/h]	54	140	280	97	75	280
Rated power [W]	10	42	150	20	14	150
Permissible duct/system resistance [Pa]	100 Pa at 200 m^3/h					
Maximum flow (Free Discharge)	280 m^3/hr (78 l/s)					
Low and Medium flow and optional sensor inputs	0-100% adjustable on each speed. Set on installation					
Dimensions (w x h x d) [mm]	560 x 635 x 260					
Duct diameter [m]	Ø125					
External diameter condensate discharge [mm]	22					
Filter class	EU3					
Weight [kg]	14 kg					
Supply voltage [V~/Hz]	230V / 50Hz / 1Ph					
Power (watts)	Maximum 150W					
Protection degree	IPX2					
Thermal efficiency up to (up to %)	94%					

Fan air performance graph



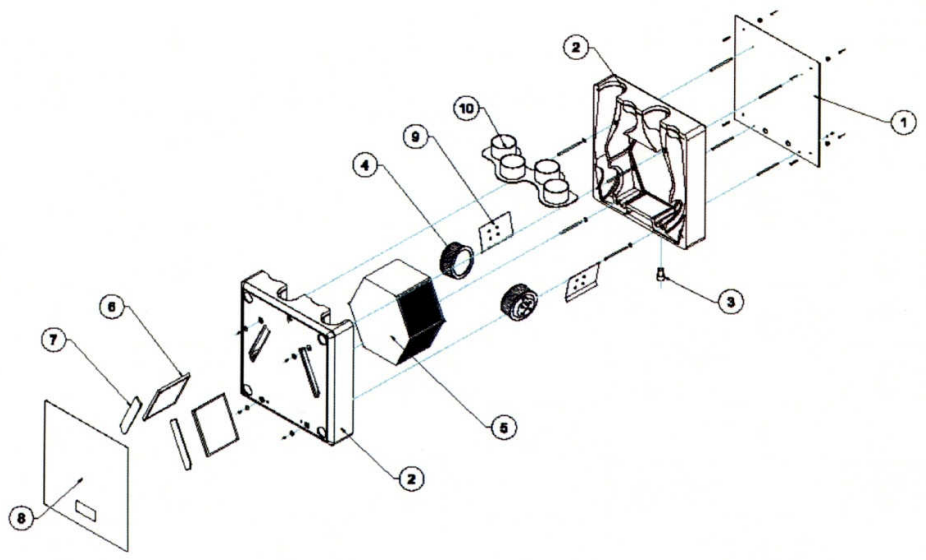
5. Technical specifications

5.1 Exploded view of the HR unit

Please refer to guarantee terms for repair/replacement within the guarantee period. After expiry of the guarantee when ordering parts, be sure to mention the article code number (see exploded view), the type of heat recovery appliance, serial number, production year and the name of the part:

Example	Appliance type	: DV72 EC
	Serial number	:
	Year of production	: 2010
	Part No	: 9041322
	Part required	
	Replacement Filters (2)	: 9041511

Type and serial number are printed at the identification plate on the top of the inner assembly.



Parts List	
Nr	**Article description**
1	Back Plate
2	EPP Mouldings
3	Condensation Drain
4	EC Fans
5	Heat Recovery Cell
6	Filters (9041511 pack of two)
7	Filter Covers
8	Front Plate

SAP Appendix Q Testing Results
Central mechanical supply and exhaust ventilation system packages with heat recovery used in a single dwelling

Brand Name		Airflow
Model		Duplexvent DV72
Model Qualifier (if applicable)		
Current Manufacturer and Contact Details	**Name**	Airflow Developments Ltd
	Address	Lancaster Road Cressex Business Park High Wycombe HP12 3QP
	Telephone	01494 525252
	Website	www.airflow.co.uk
Original Manufacturer (if different)		
First Year of Manufacture		2010
Last Year of Manufacture		
Testing Body		BRE
Date of test		22/03/2010
Serial Number of Product Tested		5780 EC
MVHR to outside grille duct types and size		150 & 125 mm diameter rigid plastic and 200 mm diameter rigid plastic
Duct types and sizes used for supply and exhaust		150 & 125 mm diameter rigid plastic and 200 mm diameter rigid plastic

Results of leakage tests

Table Q1

Internal	**Pass**
External	**Pass**

Results for SAP calculations (at minimum flow rate condition)

This product has only been tested with rigid ductwork and the data are not applicable for SAP calculations if installed with flexible ductwork.

Table Q2 – Systems with **rigid** ductwork only

Exhaust terminal configuration	Fan speed setting	Specific fan power (W/l/s)	Heat exchange efficiency (%)	Energy Saving Trust Best Practice Performance Compliant
Kitchen + 1 additional wet room	100% Variable	**0.73**	**91**	Yes
Kitchen + 2 additional wet rooms	100% Variable	**0.72**	**90**	Yes
Kitchen + 3 additional wet rooms	100% Variable	**0.79**	**89**	Yes
Kitchen + 4 additional wet rooms	100% Variable	**0.93**	**88**	Yes
Kitchen + 5 additional wet rooms	100% Variable	**1.06**	**87**	No

These figures are entered into either:

(a) In the case of SAP software amended to SAP 2005 version 9.81 allowing direct entry of MVHR data, the SAP software, or

(b) In the case of SAP software amended to SAP 2005 version 9.81 not allowing direct entry of MVHR data, the SAP Q MVHR Calculation Spreadsheet v9.81 and the results from the spreadsheet into the Special Features part of the SAP 9.81 software, or

(c) In the case of SAP software to SAP 2005 version 9.80 , the SAP Q MVHR Calculation Spreadsheet v9.80 and the results from the spreadsheet into the Special Features part of the SAP 9.80 software. They must ***NOT*** be entered directly into SAP 2005 version 9.80 software

Table Q3 – Systems with **flexible** ductwork only

Exhaust terminal configuration	Fan speed setting	Specific fan power (W/l/s)	Heat exchange efficiency (%)	Energy Saving Trust Best Practice Performance Compliant
Kitchen + 1 additional wet room	N/A	**N/A**	**N/A**	N/A

These figures are entered into either:
(a) In the case of SAP software amended to SAP 2005 version 9.81 allowing direct entry of MVHR data, the SAP software, or
(b) In the case of SAP software amended to SAP 2005 version 9.81 not allowing direct entry of MVHR data, the SAP Q MVHR Calculation Spreadsheet v9.81 and the results from the spreadsheet into the Special Features part of the SAP 9.81 software, or
(c) In the case of SAP software to SAP 2005 version 9.80 , the SAP Q MVHR Calculation Spreadsheet v9.80 and the results from the spreadsheet into the Special Features part of the SAP 9.80 software. They must ***NOT*** be entered directly into SAP 2005 version 9.80 software

Results for Approved Document F (at maximum flow rate condition)

Table Q4

Exhaust terminal configuration	Fan speed setting	Total exhaust flow rate (l/s)	Total supply flow rate (l/s)
Kitchen + 1 additional wet room	100% Variable	15.0	15.0
Kitchen + 2 additional wet rooms	100% Variable	21.0	21.0
Kitchen + 3 additional wet rooms	100% Variable	27.0	27.0
Kitchen + 4 additional wet rooms	100% Variable	33.0	33.0
Kitchen + 5 additional wet rooms	100% Variable	39.0	39.0

Comments

Only figures from Table Q2 or Table Q3, not both, should be used with the SAP Q Calculation Spreadsheet for this technology type.

Table Q4 results are only applicable for Approved Document F requirements.

Declaration of Conformity

We declare that the equipment detailed below conforms to the requirements of the EC council directives relating to electromagnetic compatibility and safety of electrical equipment.

Equipment type:	The Heat Recovery Appliance Model: **DV72**
Supplied by	Airflow Developments Limited Aidelle House, Lancaster Road Cressex Business Park High Wycombe Buckinghamshire HP12 3QP T: +44 (0) 1494 525252 Visit: airflow.com
Description of equipment:	Mechanical Heat Recovery Ventilation Unit
Relative EC Council Directives:	2004/108/EC (EMC) 2006/95/EC (LVD)
Applied Harmonised Standards:	EN 60335-1:2002/A2:2006 EN 60335-2-80:2003/A1:2004 EN 50366:2003

Airflow Developments Limited warrants that heat recovery appliances are manufactured from high quality materials and that continuous quality control ensures that they comply with the above directive.

Warranty

This product has a warranty period of two years. The warranty can be upgraded to THREE years from the date of purchase against faulty material or workmanship by registering on our web site at www.airflow.com
The Warranty covers the product only and not the installation cost.

In case such a fault in the manufacture becomes apparent during the Warranty Period, Airflow may, at its absolute discretion, repair the product free of charge or refund the cost of the product AS LONG AS AND ONLY IF:

1. The product is returned within the Guarantee Period with evidence of purchase date
2. The product has not been misused or handled carelessly or used on an inappropriate voltage supply
3. Repairs have not been attempted other than by Airflow's service staff or
4. In Airflow's sole discretion, the product is found to be faulty. If it were not found to be faulty, the product would be available for collection from the relevant Airflow premises within one calendar month and if it was not collected, it would be subsequently delivered by Airflow and a delivery charge will be made.
5. Has been installed in accordance with the latest Building Regulations and IEE Wiring Regulations.

This warranty does not confer any rights other than those expressly set out above and does not cover any claims for consequential loss, damage or any costs incurred in the replacement of the faulty product.

This warranty is offered as an extra benefit and does not affect your statutory right as a consumer.

All information believed correct at time of going to press.

All goods are sold according to Airflow Developments Limited's Standard Condition of Sale which is available on request.

In the interest of continuous development Airflow Developments Limited continuously strive to improve their products and reserve the right to change specifications and prices without prior notice.